# 1994 Index
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This index covers all technical items — papers, correspondence, reviews, etc. — that appeared in this periodical during 1994, and items from previous years that were commented upon or corrected in 1994.

The Author Index contains the primary entry for each item, listed under the first author's name, and cross-references from all coauthors. The Subject Index contains several entries for each item under appropriate subject headings, and subject cross-references.

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*† Check author entry for subsequent corrections/comments*

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